

EXHIBIT 26

**REDACTED VERSION OF DOCUMENT
SOUGHT TO BE SEALED**

UNITED STATES DISTRICT COURT
NORTHERN DISTRICT OF CALIFORNIA
SAN FRANCISCO DIVISION

- - - - - x
HUAWEI TECHNOLOGIES CO., LTD.; :
HUAWEI DEVICE USA, INC.; and :
HUAWEI TECHNOLOGIES USA, INC., :
Plaintiffs/Counterclaim- :
Defendants, :
v. : Case No.
SAMSUNG ELECTRONICS CO., LTD; : 16-cv-02787-WHO
SAMSUNG ELECTRONICS AMERICA, INC., :
Defendants/Counterclaim- :
Plaintiffs, :

- - - - - X

(Caption continued on next page)

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Videotaped Deposition of PAUL R. PRUCNAL, Ph.D.

Washington, DC

Friday, June 15, 2018

9:12 a.m.

Job No.: 193645

Pages 1 - 92

Reported by: Debra A. Whitehead

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Transcript of Paul R. Prucnal, Ph.D.

Conducted on June 15, 2018

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(Caption continued from previous page)

- - - - - X

SAMSUNG RESEARCH AMERICA, :

Defendant, :

v. :

HISILICON TECHNOLOGIES CO., LTD., :

Counterclaim-Defendant. :

- - - - - X

Videotaped Deposition of PAUL R. PRUCNAL,
Ph.D., held at the offices of:

SIDLEY AUSTIN, LLP

1501 K Street, NW

Washington, DC 20005

(202) 736-8000

Pursuant to notice, before Debra A. Whitehead,
an Approved Reporter of the United States District
Court and Notary Public of the District of Columbia.

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Transcript of Paul R. Prucnal, Ph.D.

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P R O C E E D I N G S

VIDEO SPECIALIST: Here begins Disk

08:58:14

Number 1 in the videotaped deposition of Paul R.

09:11:46

Prucnal in the matter of Huawei Technologies Co.,

09:11:50

Ltd., et al., versus Samsung Electronics Co.,

09:11:55

Ltd., et al., in the United States District Court,

09:12:01

Northern District of California, San Francisco

09:12:05

Division; Case Number 16-CV-02787-WHO.

09:12:09

Today's date is June 15th, 2018. The

09:12:18

time on the video monitor is 9:12. The

09:12:21

videographer today is Christie Jeon, representing

09:12:27

Planet Depos. This video deposition is taking

09:12:29

place at 1501 K Street, Northwest, Washington, DC.

09:12:33

20005.

09:12:42

Would counsel please voice-identify

09:12:43

themselves and state whom they represent.

09:12:47

MR. LORDGOOEI: Iman Lordgooei of Quinn

09:12:49

Emanuel, representing the Samsung entities.

09:12:52

MR. LEWIS: Douglas Lewis, Sidley Austin,

09:12:55

LLP, representing the Huawei entities.

09:12:58

The court reporter today is Debbie

09:13:00

Whitehead, representing Planet Depos. Would the

09:13:02

reporter please swear in the witness.

09:13:05

PAUL PRUCNAL,

09:13:05

having been duly sworn, testified as follows:

09:13:14

PLANET DEPOS

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Transcript of Paul R. Prucnal, Ph.D.

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1	You're asking me whether it's solely user	11:03:57
2	data. And I don't see anything here that says	11:04:00
3	there couldn't be something else with the user	11:04:04
4	data going through the FFT. But this is only	11:04:08
5	describing the user data going through the FFT.	11:04:10
6	Q So you're saying as one of skill in the	11:04:12
7	art, from the description there of data, you can't	11:04:15
8	be sure that it doesn't also include control	11:04:18
9	information or signaling information?	11:04:21
10	MR. LORDGOOEI: Objection. Form.	11:04:24
11	A To say 100 percent that there's nothing	11:04:44
12	else included with the user data, to me it would	11:04:47
13	have to say that. I -- I can confirm that there's	11:04:50
14	user data going through the FFT, and these other	11:04:55
15	examples of control signals are not going through	11:04:57
16	the IFFT -- I'm sorry, are not going through the	11:05:00
17	FFT before reaching the IFFT.	11:05:04
18	Q Do you agree that acknowledgment,	11:05:06
19	negative acknowledgment -- AK, NAK -- is a form of	11:05:12
20	control information?	11:05:16
21	MR. LORDGOOEI: Objection. Form.	11:05:19
22	A Yes. I agree that control information	11:05:35
23	could include acknowledgment and negative	11:05:40
24	acknowledgment.	11:05:42
25	Q Does control information include channel	11:05:43

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1	quality indicator, CQI?	11:05:48
2	MR. LORDGOOEI: Objection. Form.	11:05:56
3	A Yes, control information can include the	11:06:57
4	channel quality indicator, CQI.	11:07:00
5	Q Does control information include pilots?	11:07:03
6	MR. LORDGOOEI: Objection. Form.	11:07:14
7	A Yes. Control information in this context	11:07:58
8	can be a pilot.	11:08:02
9	Q Is the DRS, or DMRS, a pilot in LTE?	11:08:04
10	MR. LORDGOOEI: Objection. Form.	11:08:14
11	A The DMRS is a type of reference signal	11:08:31
12	that's used in demodulation. I'm not certain at	11:08:35
13	this point if it's also referred to as a pilot. I	11:08:44
14	think I talk about that in my report.	11:08:47
15	Q Is it a pilot?	11:08:50
16	A I don't think I've opined on this.	11:10:46
17	Looking back on my report, I don't see a reference	11:10:48
18	to DMS -- DMRS being a pilot.	11:10:52
19	Q As you sit here right now, is the DMRS a	11:10:57
20	pilot in LTE?	11:11:01
21	A I don't want to speculate off the top of	11:11:12
22	my head. I have an understanding of what the DMRS	11:11:14
23	does, but I don't recall specifically if it's	11:11:18
24	referred to as a pilot in LTE.	11:11:21
25	Q So you have no opinion about whether or	11:11:24

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1 of a report. And I don't even see whether he's 11:43:59
2 referring to PUSCH or PUCCH here. It's just out 11:44:02
3 of context. So I -- I can't interpret it. 11:44:05

4 Q Okay. Do you interpret "every symbol" to 11:44:08
5 not mean every symbol? 11:44:11

6 MR. LORDGOOEI: Objection. Form. 11:44:13

7 A Again, out of context, I don't know -- I 11:44:20
8 don't know what the context of "every symbol" is, 11:44:25
9 whether he's referring to every symbol in every 11:44:28
10 frame, every symbol in frames that occur 11:44:32
11 sometimes. I don't know whether it's PUSCH or 11:44:35
12 PUCCH. 11:44:38

13 I -- I assume that he didn't intend to 11:44:42
14 say every symbol in every frame of the PUSCH. And 11:44:44
15 if that was his intention, I -- I think perhaps he 11:44:50
16 misspoke. 11:44:53

17 Q Or he's wrong. 11:44:54

18 MR. LORDGOOEI: Objection. Form. 11:44:55

19 A Well, again, out of context, I don't even 11:44:56
20 know -- I can't tell you what he's talking about 11:45:04
21 here without looking at the context. 11:45:06

22 Q Well, if he says, Every symbol in every 11:45:07
23 frame of the PUSCH, do you think he's wrong? 11:45:10

24 MR. LORDGOOEI: Objection. Form. 11:45:13

25 A I know that not every symbol of the PUSCH 11:45:18

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1 necessarily contains CQI. And, therefore, I'm 11:45:25
2 assuming that that's what he did not intend to say 11:45:31
3 here. But I don't know his intention. I don't 11:45:34
4 know the context. And I really can't sort of 11:45:36
5 guess further. 11:45:39

6 Q Let's talk about the second sentence 11:45:40
7 there. "Each symbol, in other words, consists of 11:45:42
8 coded CQI and data information mapped over 11:45:46
9 different subcarriers." 11:45:49

10 Do you see that? 11:45:50

11 A Yes. 11:45:56

12 Q Do you agree with Dr. Bambos' statement 11:45:57
13 in that sentence? 11:45:59

14 MR. LORDGOOEI: Objection. Form. 11:46:00

15 A I also don't know what he's intending to 11:46:15
16 say. Because this is out of context, and I 11:46:17
17 haven't -- I haven't read this material that 11:46:20
18 precedes it. 11:46:24

19 He -- he's pointing to a paragraph 11:46:27
20 excerpt that follows it. I also am not familiar 11:46:29
21 with that. 11:46:33

22 Q So if Dr. Bambos means every symbol by 11:46:36
23 "each symbol," do you agree with his statement in 11:46:40
24 the second sentence of Paragraph 564 of his 11:46:44
25 report? 11:46:51

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1	[REDACTED]	11:51:44
2	[REDACTED]	11:51:48
3	[REDACTED]	11:51:55
4	[REDACTED]	11:51:59
5	[REDACTED]	11:52:46
6	[REDACTED]	11:52:51
7	[REDACTED]	11:52:51
8	[REDACTED]	11:52:53
9	[REDACTED]	11:52:56
10	[REDACTED]	11:52:59
11	[REDACTED]	11:53:03
12	[REDACTED]	11:53:18
13	[REDACTED]	11:53:35
14	[REDACTED]	11:53:38
15	[REDACTED]	11:53:50
16	[REDACTED]	11:54:01
17	[REDACTED]	11:54:08
18	[REDACTED]	11:54:13
19	[REDACTED]	11:54:17
20	[REDACTED]	11:54:19
21	[REDACTED]	11:54:25
22	[REDACTED]	11:54:27
23	[REDACTED]	11:54:28
24	[REDACTED]	11:54:28
25	[REDACTED]	11:54:30

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1	MR. LORDGOOEI: Objection. Form.	11:54:35
2	[REDACTED]	11:56:26
3	[REDACTED]	11:56:30
4	[REDACTED]	11:56:34
5	[REDACTED]	11:56:42
6	[REDACTED]	11:56:48
7	[REDACTED]	11:57:04
8	[REDACTED]	11:57:09
9	[REDACTED]	11:57:14
10	[REDACTED]	11:57:20
11	[REDACTED]	11:57:26
12	[REDACTED]	11:57:29
13	[REDACTED]	11:57:33
14	[REDACTED]	11:57:41
15	[REDACTED]	11:57:50
16	[REDACTED]	11:57:59
17	[REDACTED]	11:58:05
18	[REDACTED]	11:58:10
19	[REDACTED]	11:58:13
20	[REDACTED]	11:58:30
21	[REDACTED]	11:58:44
22	[REDACTED]	11:58:46
23	[REDACTED]	11:58:58
24	[REDACTED]	11:58:58
25	[REDACTED]	11:59:02

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1	Q	And the cell-specific parameter is	12:38:49
2		signaled by one or more higher layers. Right?	12:38:52
3	A	It says that, yes.	12:39:00
4	Q	Okay. Let's take a look at your report,	12:39:02
5		which is Exhibit 824. If I could direct you to	12:39:11
6		Paragraph 208 on Page 91.	12:39:15
7	A	Okay.	12:39:28
8	Q	The second sentence reads, "A	12:39:28
9		cell-specific broadcast message is a higher layer	12:39:31
10		signal transmitted by the base station and	12:39:35
11		includes cell-specific parameters that apply to	12:39:38
12		all mobile devices in the specific cell being	12:39:40
13		served by the base station."	12:39:43
14		Do you see that?	12:39:45
15	A	Yes, I do.	12:39:46
16	Q	Okay. And that's your understanding of	12:39:47
17		what a cell-specific message is?	12:39:49
18		MR. LORDGOOEI: Objection. Form.	12:39:54
19	A	Well, this is -- this is definitely part	12:40:24
20		of my -- my opinion. There might be other things	12:40:26
21		that I said in here about it, I just -- I don't	12:40:30
22		know offhand.	12:40:32
23	Q	So a cell-specific refers to signaling	12:40:33
24		that's the same for each of the terminals in a	12:40:38
25		cell. Right?	12:40:40

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1	MR. LORDGOOEI: Objection. Form.	12:40:49
2	A So this is talking about the broadcast	12:40:53
3	message from the base station. And that includes	12:40:57
4	a cell-specific parameter that is broadcast from	12:41:06
5	the base station to all mobile devices. And it	12:41:09
6	applies to all the mobile devices in the cell.	12:41:11
7	So the -- the same thing is -- is	12:41:16
8	broadcast to all the mobile devices in the cell.	12:41:19
9	Q Are you familiar with something called	12:41:25
10	mobile-input [sic] multiple-output in LTE?	12:41:48
11	A I'm generally familiar with that, yes.	12:41:55
12	Q What is -- are you familiar with it being	12:41:56
13	referred to by the acronym M-I-M-O?	12:42:00
14	A Yes, MIMO.	12:42:03
15	Q What is MIMO in LTE?	12:42:04
16	A It's multiple-input multiple-output.	12:42:07
17	Q Does MIMO refer to the use of multiple	12:42:10
18	antennas?	12:42:12
19	MR. LORDGOOEI: Objection. Form.	12:42:13
20	A Generally MIMO has more than one antenna,	12:42:24
21	it's multiple-input multiple-output.	12:42:27
22	Q In LTE, can MIMO use a two-antenna or	12:42:29
23	four-antenna scheme for transmit diversity?	12:42:41
24	MR. LORDGOOEI: Objection. Form.	12:42:46
25	A I don't recall exactly. I know that two	12:43:12

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1 HW_Samsung_SC_00000020. And the same Bates number
2 with 21 rather than 20 at the end.

3 Q So are these the Bates numbers that you
4 intended to reference in your report?

5 A Yes. These were not included, and should
6 have been. I intended to.

7 Q Okay. And did you bring any other
8 documents with you today?

9 A Yes.

10 Q What else did you bring with you?

11 MR. LEWIS: I object as beyond the scope
12 of the direct.

13 [REDACTED]

14 [REDACTED]

15 [REDACTED]

16 [REDACTED]

17 [REDACTED]

18 (Deposition Exhibit 834 marked for
19 identification and is attached to the transcript.)

20 Q Let me hand you Exhibit 834.

21 MR. LEWIS: Object to this exhibit as
22 beyond the scope of the direct.

23 Q Do you recognize Exhibit 834?

24 A Yes.

25 Q What is that document?

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1 MR. LEWIS: Objection. Beyond the scope
2 of the direct.

13:15:16

13:15:18

13:15:19

13:15:25

13:15:35

13:15:39

13:15:48

13:15:55

13:15:58

10 MR. LORDGOOEI: Okay. I have no further
11 questions.

13:16:02

13:16:04

12 MR. LEWIS: I don't have any.

13:16:04

13 MR. LORDGOOEI: And before we go off, I'd
14 like to request to read and sign, and also mark
15 the transcript highly confidential, attorneys'
16 eyes only.

13:16:08

13:16:11

13:16:15

13:16:20

17 VIDEO SPECIALIST: This marks the end of
18 the deposition of Paul R. Prucnal. We are going
19 off the record at 1:16.

13:16:22

13:16:23

13:16:26

20 (Off the record at 1:16 p.m.)
21
22
23
24
25

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1 CERTIFICATE OF SHORTHAND REPORTER - NOTARY PUBLIC

2 I, Debra Ann Whitehead, the officer before whom
3 the foregoing deposition was taken, do hereby
4 certify that the foregoing transcript is a true and
5 correct record of the testimony given; that said
6 testimony was taken by me stenographically and
7 thereafter reduced to typewriting under my
8 direction; that reading and signing was requested;
9 and that I am neither counsel for, related to, nor
10 employed by any of the parties to this case and have
11 no interest, financial or otherwise, in its outcome.

12 IN WITNESS WHEREOF, I have hereunto set my hand and
13 affixed my notarial seal this 19th day of June,
14 2018.

15
16 My commission expires:

17 September 14, 2018



21 -----
22 NOTARY PUBLIC IN AND FOR THE
23 DISTRICT OF COLUMBIA
24
25